### (12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

## (19) World Intellectual Property Organization

International Bureau



# E CONTROL ENTREMENT DE CONTROL ENTRE ENTRE ENTRE ENTRE EN ESTA ENTRE ENTRE ENTRE ENTRE ENTRE ENTRE ENTRE ENTRE

(43) International Publication Date 20 January 2005 (20.01.2005)

**PCT** 

# (10) International Publication Number WO 2005/006318 A1

- (51) International Patent Classification7: G11B 7/007, 7/24
- (21) International Application Number:

PCT/IB2004/051100

- (22) International Filing Date: 2 July 2004 (02.07.2004)
- (25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data: 03102114.0

11 July 2003 (11.07.2003) EP

- (71) Applicant (for all designated States except US): KONIN-KLIJKE PHILIPS ELECTRONICS N.V. [NL/NL]; Groenewoudseweg 1, NL-5621 BA Eindhoven (NL).
- (72) Inventor; and
- (75) Inventor/Applicant (for US only): MARTENS, Hubert, C., F. [NL/NL]; c/o Prof. Holstlaan 6, NL-5656 AA Eindhoven (NL).
- (74) Agent: UITTENBOGAARD, Frank; Prof. Holstlaan 6, NL-5656 AA Eindhoven (NL).

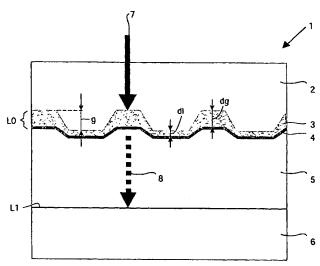
- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

#### **Declaration under Rule 4.17:**

— as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii)) for the following designations AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE,

[Continued on next page]

#### (54) Title: RECORDABLE OPTICAL RECORD CARRIER



(57) Abstract: The present invention relates to a recordable optical record carrier for recording information using a radiation beam having wavelength  $\lambda$  and incident on an entrance surface of the optical record carrier comprising, in this order: a protective layer facing the entrance surface; first recording stack (L0), said recording stack comprising a recording layer of an organic dye material and a groove structure; a transparent spacer layer sandwiched between the neighboring recording stacks; and a second recording stack (LN) comprising a recording layer, wherein the groove depth of the recording layer of the first recording stack (L0) is in a range from 0.241 \* $\lambda$ /n<sub>S</sub> to 0.362\* $\lambda$ /n<sub>S</sub>, where n<sub>S</sub> is a refractive index of a material in a land between grooves on the groove structure. An increase in both reflection and transmission of at least the first recording stack (L0) can be obtained according to the present invention by decreasing the groove depth of the recording layer of at least the first recording stack (L0). A further improvement can be obtained by increasing the recording layer leveling.





# WO 2005/006318 A1

EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW, ARIPO patent (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE,

IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG)

#### Published:

- with international search report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.